

## CLAIMS

We claim:

- 5 1. A system for providing to system users IP centric, multi-channel, time-shifted and real time telecommunication services such as live television, television on demand, video on demand, and karaoke on demand, comprising:

10 a media content creator subsystem for receiving multiple video signal streams each having one of several industry standard communication format, and for converting the incoming video signal streams into digital data and compressing the digital data into IP based packets, for transmission over broadband network;

a storage means for storing IP based packets and permitting stored IP based packets to be retrieved therefrom;

15 a gateway means for receiving packets from multiple sources and combining such packets for transmission over a broadband communication network;

20 a media streaming subsystem for receiving, and forwarding streams of IP based packets, said media streaming subsystem being responsive to a user request and operative to forward a selected stream of IP based packets from either said content creator subsystem or said storage means to said gateway means or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets to said gateway means; and

a content management subsystem for controlling user access to the system and providing user account management.

- 5     2. The system of claim 1 wherein the content management subsystem provides at least: user authentication, user billing, intellectual property right management, management of quality of user services, and management of transmission channel bandwidth.
3. The system of claim 1 wherein the digital data are encoded based on MPEG1.
4. The system of claim 1 wherein the digital data are encoded based on MPEG2.
- 10    5. The system of claim 1 wherein the digital data are encoded based on MPEG4.
6. The system of claim 1 wherein the digital data are encoded based on H.263.
7. The system of claim 1 wherein the source of the incoming video signal streams may include satellite, off the air television broadcasting, digital versatile disk, video cassette recorder, and live camera and cable television.
- 15    8. The system of claim 1 wherein encoded digital data is packetized by the media streaming subsystem.
9. The system of claim 1 wherein the media streaming subsystem provides the user access to time-shifted television programming in an order selected by the user.
10. The system of claim 1 wherein the media streaming subsystem may simultaneously
- 20    provide multiple streams of IP based packets each encoded based on a different standard.
11. The system of claim 1 wherein the entire system is scalable.
12. The system of claim 1 further comprising an output subsystem providing for seamless integration of the multiple telecommunication services including television on demand, video on demand, karaoke on demand, Internet services, and telephone services.
- 25    13. The system of claim 1 wherein the system is capable of providing services to both wired and wireless networks.
14. The system of claim 1 wherein the incoming video signal streams are in S-video format.

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5 15. The system of claim 1 wherein the incoming video signal streams are in NTSC/PAL composite TV signal format.

16. The system of claim 1 wherein the incoming video signal streams are in RGB component video format.

17. The system of claim 1 wherein the incoming audio signal streams are in two sound  
10 tracks.

18. A method for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, said method comprising:

receiving multiple video signal streams each having one of several industry  
15 standard communication format by a media content creator subsystem, and converting the incoming video signal streams into digital data and compressing the digital data into IP-based packets, for transmission over broadband network;

storing IP based packets and permitting stored IP based packets to be retrieved from a storage means;

20 receiving packets from multiple sources via a gateway means and combining such packets for transmission over a broadband communication network;

receiving and forwarding streams of IP based packets using a media streaming subsystem being responsive to a user request and operative to forward a selected stream of IP based packets from either said content creator subsystem or said storage means to  
25 said gateway means or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets to said gateway means; and

controlling user access to the system and providing user account management.

- 5 19. The method of claim 18 further providing at least one of: user authentication, user billing, intellectual property right management, management of quality of user services, and management of transmission channel bandwidth.
20. The method of claim 18 wherein the digital data are encoded based on MPEG1.
21. The method of claim 18 wherein the digital data are encoded based on MPEG2.
- 10 22. The method of claim 18 wherein the digital data are encoded based on MPEG4.
23. The method of claim 18 wherein the digital data are encoded based on H.263.
24. The method of claim 18 wherein the source of the incoming video signal streams may include satellite, off the air television broadcasting, digital versatile disk, video cassette recorder, and live camera and cable television.
- 15 25. The method of claim 18 wherein encoded digital data is packetized by a media streaming subsystem.
26. The method of claim 18 wherein the media streaming subsystem provides the user access to time-shifted television programming in an order selected by the user.
27. The method of claim 18 wherein the media streaming subsystem may simultaneously
- 20 provide multiple streams of IP based packets each encoded based on a different standard.
28. The method of claim 18 wherein the entire system is scalable.
29. The method of claim 18 further comprising providing for seamless integration of the multiple telecommunication services including television on demand, video on demand, karaoke on demand, Internet services, and telephone services.
- 25 30. The method of claim 18 wherein the applicable for providing services to both wired and wireless networks.
31. The method of claim 18 wherein the incoming video signal streams are in S-video format.

Patent 6,644,660

5 32. The method of claim 18 wherein the incoming video signal streams are in NTSC/PAL composite TV signal format.

33. The method of claim 18 wherein the incoming video signal streams are in RGB component video format.

10 34. The method of claim 18 wherein the incoming audio signal streams are in two sound tracks.

35. A computer program embodied on a computer readable medium for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, comprising:

15 a code segment for receiving multiple video signal streams each having one of several industry standard communication format by a media content creator subsystem, and converting the incoming video signal streams into digital data and compressing the digital data into IP based packets, for transmission over broadband network;

20 a code segment for storing IP based packets and permitting stored IP based packets to be retrieved from a storage means;

a code segment for receiving packets from multiple sources via a gateway means and combining such packets for transmission over a broadband communication network;

25 a code segment for receiving and forwarding streams of IP based packets using a media streaming subsystem being responsive to a user request and operative to forward a selected stream of IP based packets from either said content creator subsystem or said storage means to said gateway means or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets to said gateway means; and

a code segment controlling user access to the system and providing user account management.



5 46. The computer program product of claim 35 further comprising a computer program product for providing for seamless integration of the multiple telecommunication services including television on demand, video on demand, karaoke on demand, Internet services, and telephone services.

10 47. The computer program product of claim 35 wherein the applicable for providing services to both wired and wireless networks.

48. The computer program product of claim 35 wherein the incoming video signal streams are in S-video format.

49. The computer program product of claim 35 wherein the incoming video signal streams are in NTSC/PAL composite TV signal format.

15 50. The computer program product of claim 35 wherein the incoming video signal streams are in RGB component video format.

51. The computer program product of claim 35 wherein the incoming audio signal streams are in two sound tracks.

20 52. A method for receiving IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, said method comprising:

25 transmitting a user selection of a television program to a remote system, wherein said system receives multiple format incoming video signals from multiple sources, converts the incoming video signals into digital data; encodes the digital data into IP based packets based on multiple compression standards, wherein said IP packets may be ready for transmission over a network, stores the IP based packets in an indexed, accessible database; and provides multiple streams of IP based packets to the user upon request, over a broadband communication channel;

30 receiving streams of IP based packets representing the user selected television program.

5 52. A method for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, said method comprising:

converting multiple format video signal streams into IP based packets ready for transmission over broadband networks;

10 receiving, storing and forwarding the IP based packets, based on a request from a user, each said IP based packets including data representing the converted and encoded content of a user requested program file;

providing user account management including controlling user access to the entire system;

15 providing a user interface means for a user to select time-shifted telecommunication services; and

providing means for transmitting the user selected, IP based packets to the user over a broadband network.